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The editors of *BD+C* blog on key issues and trends affecting the AEC industry: Jeff Yoders on BIM, IPD, CAD, and IT; Robert Cassidy on green building, sustainability, and climate change; Jay W. Schneider on innovative design and construction trends; and Dave Barista on helpful building product and technology tips.

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Thursday, August 13, 2009



Is building commissioning worth the cost?

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By Dave Barista

If there's a single profession within the construction industry that is more undervalued and overlooked than the building commissioning agent, please let me know, because I'm not aware of one.

The role of the BC agent—identifying flaws and deficiencies in new and existing buildings—is critical to meeting a building's design intent and maximizing the performance of its systems. Yet only about 1% of buildings in the U.S. are commissioned, according to the U.S. Energy Department. The unfortunate fact is most building owners and developers are not convinced building commissioning is worth the upfront cost.

As James Qualk, LEED AP, VP of the Sustainable Solutions Group at commissioning provider SSRcx, puts it: "I still feel like the overall benefits of commissioning are not sinking in. Whether it's the down economy that is to blame or a general lack of understanding of the truly immense and well-documented benefits, I can't say for sure."

A [new study](#) by Evan Mills, PhD, of Lawrence Berkeley National Laboratory sheds some light on the real dollar value of building commissioning services, and the findings should be an eye-opener for any building owner who remains skeptical of commissioning.

For the study, Mills gleaned data from the world's largest database of commissioning case studies for new and existing buildings. In all, 643 buildings across 26 states were analyzed, representing 99 million sf of floor space.

The findings show the median payback period for commissioning services among the large sample group to be just 1.1 years for existing buildings and a respectable 4.2 years for new construction, with median whole-building energy savings of 16% and 13%, respectively. Median costs for the commissioning services were \$0.30/sf for existing buildings and \$1.16/sf for new construction.

"Commissioning is arguably the single-most cost-effective strategy for reducing energy, costs, and greenhouse-gas emissions in buildings today," writes Mills in the report.

Additional findings:

- Median benefit-cost ratios: 4.5 (existing) and 1.1 (new construction)
- Cash-on-cash returns: 91% (existing) and 23% (new)
- Considerable reductions in greenhouse-gas emissions were achieved, at a negative cost of -\$110/ton (existing) and -\$25/ton (new) CO₂-equivalent.
- High-tech buildings are particularly cost-effective, and saved large amounts of energy and emissions due to their energy-intensiveness.
- Projects employing a comprehensive approach to commissioning attained nearly twice the overall median level of savings, and five-times the savings of projects with a constrained approach.
- Limited multi-year, post-commissioning data indicate that savings often persistent for a period of at least five years.
- Uniformly applying the median whole-building energy-savings value to the stock of U.S. nonresidential buildings yields an energy-savings potential of \$30 billion by the year 2030, and annual greenhouse gas emissions reductions of about 340 megatons of CO₂ each year.

Download the free report at: <http://cx.lbl.gov/2009-assessment.html>

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